Faces in Poisson hyperplane mosaics

Rolf Schneider (Univ. Freiburg i. Br.)

Random tessellations, or mosaics, are one of the most intensely studied models of stochastic geometry. Particularly accessible are the tessellations that are generated by Poisson processes of hyperplanes in $\mathbb{R}^d$. The distributions of these hyperplane processes are assumed to be invariant under translations, but not necessarily under rotations. For the latter reason, much of the geometry of a stationary Poisson hyperplane tessellation is influenced by the directional distribution of the underlying hyperplane process. With this in mind, we study typical faces and weighted typical faces of Poisson hyperplane mosaics, under combinatorial aspects (expected vertex numbers), as well as with a view to shape. The presented new results, partly obtained in collaboration with Daniel Hug, can be considered as continuing parts of Sections 10.3 and 10.4 of the book [1]. The proofs employ some results from the geometry of convex bodies.

[1] R. SCHNEIDER, W. WEIL: *Stochastic and Integral Geometry*. Springer 2008.